Effects of Variety, Fertilizer Application and Harvesting Interval on Napier Stunting Disease in Western Kenya

Lusweti, F. N., Muyekho, F. N. and Lusweti, C. M.
Kenya Agricultural Research Institute, Kitale
E-mail: francescalusweti@yahoo.com

Abstract

In The Late 1990s a disease causing stunting of Napier was observed in western Kenya. Bungoma (LM2), Butere and Mumias (LM1) were the worst affected districts. The causal organism of the disease has been identified as a phytoplasma, transmitted by leaf hoppers. The objectives of this study were to quantify the effects of the disease on crop yield and to study the effects of plant nutrition on the disease using scores. In 2005, a study was set up at the Busia (LM1) and Mabanga (LM2) Agricultural Training Centres (ATC). Varieties used were Kakamega 1 and French Cameroon, compared to plots established from diseased Napier. Fertilizer treatments were: (1) nitrogen (N), phosphorus (P) and potassium (K), (2) N and P, (3) N and K, (4) farmyard manure (FYM), and (5) N only (control). The P, K and FYM were applied at planting, while N was applied as a top-dress 6 and 12 months after planting. At Busia ATC, K application resulted in the lowest disease scores, whereas P had little effect. At Mabanga ATC, FYM gave the lowest disease scores, while P had little effect. At Busia ATC, at the first cut Kakamega 1 seemed to have a higher disease score than French Cameroon, though by the second cut the two varieties had nearly the same scores. Kakamega 1 maintained low disease scores in the first two cuts at Mabanga ATC. At Busia ATC French Cameroon gave highest yields and lowest disease scores. At Mabanga however, Kakamega 1 had better yields than French Cameroon. At Busia ATC P+K, gave the highest total plot dry matter yields followed by FYM. Control plots gave the lowest yields. At Mabanga the best fertilizer was K followed by FYM. Thus, using K and/or P may have positive effects in increasing yields from infected plots.